

REMARKS

Claims 1-11 were pending. By way of the present Reply, claims 1, 6, 8, and 10-11 are currently amended, claims 12-15 are added, and claims 2-5, 7, and 9 are cancelled without prejudice or disclaimer. Claims 1, 6, 8, and 10-15 are pending and are being submitted for consideration.

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority.

IDS of August 9, 2010

Applicant thanks the Examiner for initialing the IDS submitted July 7, 2006. Applicant respectfully request that the references listed on the forms submitted with the IDS filed by Applicant on August 9, 2010, be initialed by the Office and a copy of the form showing the initialization be provided to Applicant's agent.

Drawing Objection

The drawings are objected to under 37 C.F.R. § 1.83(a) for not showing the V-shaped cross section referred to in claim 5. Claim 5 has been cancelled. The drawing objection is therefore moot. Favorable consideration and withdrawal of the drawing objection are respectfully requested.

35 U.S.C. § 112 Claim Rejections

Claim 5 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claim 5 has been cancelled. The rejection is therefore moot.

Claims 1-11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 2-5, 7, and 9 have been cancelled. Some of the subject matter of claims 2-4, 6-7 and 9 are included in either or both claims 1 and 12. Appropriate amendments have been made to claims 1 and 12 to address the 35 U.S.C. § 112 rejections. Claims 2-5, 7, and 9 have been cancelled. The rejection of these claims is therefore moot. The remainder of the claims have been amended as appropriate.

Favorable consideration and withdrawal of the 35 U.S.C. § 112 rejection is respectfully requested.

35 U.S.C. § 102 Claim Rejections – Urushibara

Claims 1-2 and 4-5 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 58-000093 (“Urushibara”). Claims 4 and 5 have been cancelled.

Claim 1, as amended, calls for a fin that comprises, amongst other things, gills and molded stiffening elements, “wherein the cross section includes an incident-flow region, a flow-off region, and a deflecting region arranged between the incident-flow region and the flow-off region, wherein the incident-flow region includes an incident flow-angle, the flow-off region includes a flow-off angle, and the deflecting region includes a deflecting angle, and wherein the incident flow-off angle and the flow-off angle each lies in a range of from 0 to 10 degrees and the deflecting angle lies in a range of from 15 degrees to 35 degrees.” Urushibara fails to disclose, teach, or suggest such a fin.

Urushibara discloses louver vanes. (Urushibara, abstract). Urushibara, however, fails to disclose, teach, or suggest the aforementioned claimed subject matter. Thus, claim 1 is allowable over Urushibara. Claim 2 depends from claim 1 and is allowable therewith for at least the reasons that claim 1 is allowable in addition to its respective recitations. Favorable consideration and withdrawal of the 35 U.S.C. § 102(b) rejection is respectfully requested.

35 U.S.C. § 102 Claim Rejections – Maruo

Claims 1-2 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 61-052589 (“Maruo”). Claim 5 has been cancelled.

Claim 1, as amended, calls for a fin that comprises, amongst other things, gills and molded stiffening elements, “wherein the profile includes an S-shaped cross section with two rounded portions, wherein the cross section includes an incident-flow region, a flow-off region, and a deflecting region arranged between the incident-flow region and the flow-off region, wherein the incident-flow region includes an incident flow-angle, the flow-off region includes a flow-off angle, and the deflecting region includes a deflecting angle, and wherein the incident flow-off angle and the flow-off angle each lies in a range of from 0 to 10 degrees and the deflecting angle lies in a range of from 15 degrees to 35 degrees.” Maruo fails to disclose, teach, or suggest such a fin.

Maruo discloses a slot 10a of a louver where air flow 6 flows smoothly between slats 10a. (Maruo, abstract). Maruo, however, fails to disclose, teach, or suggest the

aforementioned claimed subject matter. Thus, claim 1 is allowable over Maruo. Claim 2 depends from claim 1 and is allowable therewith for at least the reasons that claim 1 is allowable in addition to its respective recitations. Favorable consideration and withdrawal of the 35 U.S.C. § 102(b) rejection is respectfully requested.

35 U.S.C. § 103 Claim Rejections – Hatada and Kadle

Claims 1-4 and 6-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,365,667 (“Hatada”) in view of U.S. Patent No. 4,958,681 (“Kadle”).

Claims 2-4, 7, and 9 have been cancelled.

Claim 1, as amended, calls for a fin that comprises, amongst other things, gills and molded stiffening elements, “wherein the incident flow-off angle and the flow-off angle each lies in a range of from 0 to 10 degrees and the deflecting angle lies in a range of from 15 degrees to 35 degrees.” Hatada in view of Kadle fails to disclose, teach, or suggest such a fin.

Hatada discloses a flat fin plate 11 including cuts 13 that provide thin strips 14 formed into three types of stepped louvers 15a, 15b, and 15c. (Hatada, col. 5, lines 15-30). The louvers 15a are each composed of a lower wall 15a1, rise wall 15a2, and an upper wall 15a3. (Hatada, col. 5, lines 30-34). The lower wall 15a1 is contiguous with the rise wall 15a2 bent at an angle θ_1 and tilting which terminates in the upper wall 15a3 bent at an angle θ_2 . (Hatada, col. 5, lines 36-40). The second type of louver 15b is composed of a lower wall 15b1 and rise walls 15b2 where the rise walls 15bs form an angle θ_3 . (Hatada, col. 5, lines 45-49). The third type of louver 15c includes an intermediate wall 15c1, a rise portion 15c2, and an upper wall 15c3. (Hatada, col. 5, lines 54-59). Hatada, however, fails to disclose, teach, or suggest what the angle degrees or angle degree ranges are.

The Office asserts that the flow angles and deflecting angles are result-effective variables that would have been obvious to optimize. (Office Action, pgs. 6-7). However, the angles, of Hatada, are not recognized as result-effective variables. The angles of the claimed invention, however, are at least recognized as achieving (1) a gentle deflection of the air flow without loss-affected eddies occurring at the incident-flow edge and flow-off edge of the gills; (2) increasing buckling resistance of the gills; and (3) reducing pressure drop of the gills. Hatada does not teach all these considerations.

One of ordinary skill in the art at the time of invention would not have modified Hatada to possess Applicant's claimed invention. Hatada fails to disclose, teach, or suggest that the angles for the given shaped cross-sections are recognized as result-effective variables for achieving (1) a gentle deflection of the air flow without loss-affected eddies occurring at the incident-flow edge and flow-off edge of the gills; (2) increasing buckling resistance of the gills; and (3) reduced pressure drop of the gills to achieve any of the results of the claimed invention. Notably, only Applicant's claimed invention discloses that the angles for various cross-sectional shapes is a result-effective variable.

The Office relies on Kadle to disclose a heat exchanger comprising header boxes, tubes, and fins with gills, where the tubes may be round or flat. (Office Action, pg. 6). However, Kadle still fails to cure the deficiencies of Hatada. Thus, claim 1 is allowable over Hatada in view of Kadle. Claims 6, 8-9, and 11 depend from claim 1 and are allowable therewith for at least the reasons that claim 1 is allowable in addition to their respective recitations.

Claim 10 has been amended to depend from new claim 12. New claim 12 calls for a fin that comprises, amongst other things, gills and molded stiffening elements, "wherein the incident flow-off angle and the flow-off angle each lies in a range of from 0 to 25 degrees and the deflecting angle lies in a range of from 15 degrees to 35 degrees." For similar and/or analogous reasons to those provided for claim 1, Hatada in view of Kadle also fails to disclose, teach, or suggest the fin of claim 12. Claim 10 depends from claim 12 and is allowable therewith for at least the reasons that claim 12 is allowable in addition to its respective recitations.

Favorable consideration and withdrawal of the 35 U.S.C. § 103(a) rejection is respectfully requested.

New Claims

New claims 12-15 have been added. Support for new claims 12-15 can at least be found on page 6, lines 21-28 and page 7, line 30 – page 8, line 22 of the application as filed, claims 1-2, 4, 6, 9 and 11 of the application as filed, and Figures 6 and 8. Claims 13-15 depend from claim 12 and are allowable therewith for at least the reasons that claim 12 is allowable in addition to their respective recitations.

CONCLUSION


Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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